

Application No. 10/828,684
Amendment Dated June 13, 2008
Reply to Final Office Action of April 9, 2008

REMARKS

The Office Action received on April 9, 2008 has been carefully reviewed by the Applicants.

In the Office Action, claims 1, 16, 18, 23-25, 36, 37, 47, 48, 50 and 51 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Roehrig et al. U.S. Published Patent Application No. 2002/0097902 (hereinafter “Roehrig”) in view of Ema et al. U.S. Patent No. 5,779,634 (hereinafter “Ema”) and in further view of Rogers U.S. Patent No. 6,970,587 (hereinafter “Rogers”).

Claims 11, 38-40, 49 and 55-58 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Ema in view of Rogers and Roehrig. Claim 14 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Ema in view of Rogers and Roehrig and in further view of Ozaki et al. U.S. Patent Publication No. 2006/0050943 (hereinafter “Ozaki”).

Claim 14 has also been rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention.

By the present amendment, claims 1, 14, 16, and 55 have been amended and the application is presented with claims 1, 11, 14, 16, 18, 23-25, 36-40, 47-51, and 55-58.

Claim Rejections Under 35 U.S.C. §112

Claim 14 has been rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. By the present amendment, claim 14 now recites “wherein the step of modifying the visual appearance of the uniquely identified marker further comprises changing the color of the displayed marker.” The elements of this claim possesses proper antecedent basis in independent claim 55, from which it depends. Therefore, Applicants respectfully request that the Examiner’s rejection under 35 U.S.C. §112, second paragraph be removed from this claim.

Claim Rejections Under 35 U.S.C. §103

Claims 1, 16, 18, 23-25, 36, 37, 47, 48, 50, and 51 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Roehrig in view of Ema and Rogers. Claims 11, 38, 39, 40, 49, and 55-58 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Ema in view of

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Rogers and Roehrig. Applicant notes the Examiner's comments at paragraph 10 in the present Office Action that the Examiner has not addressed Applicant's previously submitted arguments as the specifically identified features were not recited in the rejected claims. The present amendments to claims 1, 16 and 55 seek to more particularly point out and distinctly claim that which the Applicants regard as the invention and to further distinguish the invention as claimed over the cited references.

Claim 1

Claim 1 is presently amended to further add the additional steps of presenting the stored image and at least one computer-detected region of pathological interest to a first clinician and presenting the stored image and at least one modified uniquely identified marker to a second clinician wherein the second clinician reviews the stored image and at least one modified uniquely identified marker to create a diagnosis. The invention as claimed in claim 1 further recognizes and highlights that the diagnosing clinician can be further aided by an intermediary clinician who uses the claimed invention to facilitate the first clinician's review of the diagnostic image with the help of a CAD algorithm and ROI classification. The first clinician reviews the results from the CAD algorithms and can modify those results if the clinician determines modification is necessary. Therefore, claim 1 claims a method of displaying a stored image of an anatomical feature that provides the clinician with the additional benefit of the computer aided detection and classification of ROIs. As each of the cited references already aim to provide the diagnosing clinician with an improved viewing experience, none of the cited references would motivate one to create the additional layer of clinician interpretation prior to review by diagnosing clinician. This motivation only comes from the disclosure of the present application and therefore it is improper to combine the Rogers, Roehrig and Ema references to reject presently amended claim 1.

Claims 36, 37, 47 and 48

Claims 36, 37, 47, and 48 each depend directly and/or indirectly from presently amended claim 1 which is herein believed allowable. As such, claims 36, 37, 47, and 48 are also believed allowable for the reasons stated above as well as the subject matter recited therein.

Claim 16

Presently amended claim 16 now recites the additional features of:

“the display simultaneously displaying the image of the anatomical feature and each marker to a first clinician;”

“the user input device receiving a selection of one of the markers by the first clinician, and upon review of the selected marker by the clinician, receiving a selection of classification data by the first clinician;” and

“a workstation connected to the network that receives the transferred image file, wherein a second clinician reviews the transferred image file and creates a diagnosis based on the image of the anatomical feature and the modified uniquely identified marker.”

Presently amended claim 16 now highlights additional features of the invention that are not disclosed by the cited references.

The system as presently claimed by claim 16 now claims a system for displaying a number of unique locations of pathological interest that provide two different displays to different reviewing clinicians. A first clinician is presented with a display that simultaneously displays the image of the anatomical feature and each marker corresponding to each computer-detected region of pathological interest. On the other hand, a second clinician receives the transferred image file comprising the image of the anatomical feature and the modified uniquely identified markers and reviews the transferred image file. Thus, an improved system for displaying a number of unique locations of pathological interest of an anatomical feature is claimed that aids a first clinician in a review of the diagnostic image and transfers a resulting image file to a second clinician for a review of the image file that results in a diagnosis.

Each of the cited Rogers, Roehrig, and Ema references present independent system for a diagnosing clinician with an improved diagnosing experience; however, none of them teach or would motivate one to create an additional layer of clinician interpretation that is aided by the CAD system prior to the review by the diagnosing clinician.

As stated above with respect to claim 1, Roehrig, Rogers, and Ema each fail to teach the system as claimed and in combination fail to teach or motivate one to create a system in which the results of the application of computer implemented detection algorithms are reviewed and modified by a first clinician before being sent to a diagnosing clinician that will make clinical use of the

image of the anatomical feature. Therefore, presently amended claim 16 is believed allowable over the cited Rogers, Roehrig and Ema references.

Claim 18, 23-25, 50, and 51

Claims 18, 23-25, 50 and 51 each depend directly and/or indirectly from presently amended claim 16, which is herein believed allowable. As such, claims 18, 23-25, 50, and 51 are also believed allowable for the reasons stated as well as the subject matter recited therein.

Claim 55

Presently amended claim 55 now recites the additional features of a method of diagnosing a patient condition using an annotated diagnostic image, and the steps of acquiring a diagnostic image from a patient, and receiving a diagnosis from the second clinician based upon the second clinician's review of the diagnostic image and at least one modified uniquely identified marker. The method as claimed in claim 55 further highlights the features of an advantageous method for diagnosing a patient condition. The method claimed in claim 55 uses the computer aided diagnosis algorithm as an interpretation tool wherein a first clinician is presented with the computer identified region of interest and is given the ability to provide input or modification to the uniquely identified marker identifying an identified region of interest. After the first clinician has provided this layer of review, analysis, and interpretation a second clinician is presented the diagnostic image and at least one modified uniquely identified marker such that a diagnosis may be received from the second clinician based upon a second clinician's review of the diagnostic image and at least one uniquely identified marker.

In rejecting claim 55, the Examiner specifically pointed to column 1, lines 34-38 of the Ema reference. However, the Applicant respectfully disagrees with the Examiner's interpretation of this passage of Ema and the obviousness conclusion drawn from it. Rather, the Applicants submit that the cited passage of Ema appears in the Background section and describes a prior art system wherein multiple doctors review examination images in order to improve the quality of interpretation. The rest of the disclosure of Ema seeks to show how the use of computer aided diagnosis can replace this old system. Therefore, Ema teaches away from the interjection of additional review by a clinician or the creation of a CAD system or method that improves and facilitates the review of diagnostic images by multiple clinicians. Further the system disclosed by

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Ema displays the doctors findings in outputs of the CAD results in comparison (column 4, lines 25-26). This allows for “the results of a doctor’s interpretation can be checked effortlessly in comparison with CAD results.” (column 4, lines 58-60). The purpose of these features of Ema are cited to be that they facilitate efficiency in interpreting examination images and improves the accuracy of the interpretation. However, this also teaches away from the invention as claimed as the system of Ema presents the CAD interpretation results as an electronic answer key by which the clinician may check his or her own interpretations by comparison, rather than a system that facilitates the clinician’s own ability to develop an accurate interpretation upon the clinician’s review.

Therefore, claim 55 is believed to be non-obvious over Ema, Rogers and Roehrig.

Claims 11, 38-40, 49, and 56-58

Claims 11, 38-40, 49, and 56-58 all depend directly and/or indirectly from presently amended claim 55, which is herein believed allowable. As such, claims 11, 38-40, 49 and 56-58 are also believed allowable for the reasons stated above as well as the subject matter received therein.

Claim 14

Claim 14 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Ema, Rogers, Roehrig, and Ozaki. Presently amended claim 14 depends directly from presently amended claim 55, which is herein believed allowable. As such, claim 14 is also believed allowable for the reasons stated above as well as the subject matter recited therein.

In the rejection of claim 14, the Examiner has additionally cited the disclosure of Ozaki, however, Ozaki fails to additionally disclose the features claimed and specifically referenced supra with respect to claim 55 in any way as to supplement the disclosure of Ema, Roger, or Roehrig, such as to render claim 14 obvious.

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Conclusion

In conclusion, by the present amendment and the reasons stated above, the present application is believed to be in a condition for allowance with claims 1, 11, 14, 16, 18, 23-25, 36-40, 47-51, and 55-58. Such action is earnestly requested.

Respectfully submitted,

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